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APPLICATION NO.	FILED DATE	FIRST NAMED INVENTOR	ATTORNEY/DOCKET NO.
09/033,827	03/03/98	BROSnan	D CXU-272

IM22/0901

EXAMINER

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ART UNIT

PAPER NUMBER

1742

25

DATE MAILED: 09/01/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Patent and Trademark Office
U.S. Department of Commerce

Office Action Summary	Application No. 09/033,827	Applicant(s) Brosnan, D.
	Examiner Tima McGuthry-Banks	Group Art Unit 1742

Responsive to communication(s) filed on _____.

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

Claim(s) 1-23 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

Claim(s) 1-20 is/are rejected.

Claim(s) _____ is/are objected to.

Claims 21-23 are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on _____ is/are objected to by the Examiner.

The proposed drawing correction, filed on _____ is approved disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). 4

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-20, drawn to a method, classified in class 75, subclass 10.1.
- II. Claims 21-23, drawn to an apparatus, classified in class 373, subclass 88.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process, for example for separating nonmetals such as plastics from a waste composition.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Tim Cassidy on August 20, 1999 a provisional election was made without traverse to prosecute the invention of I, claims 1-20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 21-23 are

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withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Objections

5. Claim 13 is objected to because of the following informalities: it is not clear if "1" should be replaced with -- 11 -- in line 1, based on the structure of the dependent claims, or if the claim is correctly cited. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 20 recites the limitation "said electric furnace includes carbon electrodes . . . during said heating steps [emphasis added]" in lines 2-4. There is insufficient antecedent basis for this limitation in the claim with respect to Claim 11 via Claim 19. Claim 11 does not provide antecedent basis for the radiant heating device (electric arc furnace) until the second heating step.

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Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

10. Claims 1 and 4-10 are rejected under 35 U.S.C. 102(a) as being anticipated by the Bureau of Mines publication.

The Bureau of Mines publication discloses the collection, processing and shipping of residues from five state-of-the-art municipal waste combustion (MWC) facilities to the U.S. Bureau of Mines Research Center and the installation and operation of the feed system, electric arc melting furnace, and emissions control system (page 1, paragraph 3), wherein the combustion residues are magnet screened and separated, dried, and sent to an electric arc furnace where the residues are melted. Additives such as SiO_2 and Fe_3O_4 are added to the waste residue. Fumes produced in the furnace are withdrawn and are sent to a baghouse; solids are separated from the fumes before and while the fumes are sent to the baghouse. The products from the arc furnace include a vitrified product, a metal product and a matte product (page 12). The solids separated from the fumes include cadmium, zinc and lead (page 18, 31). The metal product is intermittently tapped and the vitrified product is continuously tapped from the furnace (page 34, line 16; page 44) through separated tapping locations (page 36, 37 and 39). The metal is tapped through the bottom of the furnace (page 52, paragraph 6). The electric arc furnace is equipped

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with four graphite electrodes (page 34, line 12). The disclosure from the Bureau of Mines publication cited above anticipates the claimed invention.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 2, 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Bureau of Mines publication as applied to claim 1 above.

The Bureau of Mines publication discloses the invention substantially as claimed. However, the Bureau of Mines publication does not explicitly state heating the waste composition from at least 1900° F (1037.78° C) to a maximum of 3000° F (1648.89° C) as claimed in Claims 2, 3 and 13. The Bureau of Mines publication does state that the tapping

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temperature of the vitrified product ranges from 1385 to 1562° C and the metal tap temperature exceeded 1600° C (page 56, paragraph 2). It would have been obvious to one with ordinary skill in the art at the time the invention was made for the waste material in the Bureau of Mines publication to be heated from about 1900° F to about 3000° F, to achieve the aforementioned tapping conditions.

14. Claims 11, 12 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Bureau of Mines publication.

The Bureau of Mines publication discloses the invention substantially as claimed. However, the Bureau of Mines publication does not disclose a reducing atmosphere in the furnace as claimed in Claim 11, explicitly state heating the waste composition from at least 1900° F (1037.78° C) to a maximum of 3000° F (1648.89° C) as claimed in Claim 12, or disclose that the carbon electrodes contribute to the reducing atmosphere for facilitating volatilization of the metals as claimed in Claim 20. Regarding Claim 11, it would have been obvious to one with ordinary skill in the art at the time the invention was made that the atmosphere in the furnace in the Bureau of Mines publication would be reducing, since carbon reduces metal oxides, and the presence of CO in the exhaust gas demonstrates that some reduction (albeit partial) occurred (page 96, paragraphs 3 and 4). Regarding Claim 12, the Bureau of Mines publication does state that the tapping temperature of the vitrified product ranges from 1385 to 1562° C and the metal tap temperature exceeded 1600° C (page 56, paragraph 2). It would have been obvious to one with ordinary skill in the art at the time the invention was made for the waste material in the

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Bureau of Mines publication to be heated from about 1900° F to about 3000° F, to achieve the aforementioned tapping conditions. Regarding Claim 20, it would have been obvious to one with ordinary skill in the art at the time the invention was made for the graphite electrodes in the Bureau of Mines publication to contribute to the reducing atmosphere in the furnace, since carbon is a known reductant for metal oxides.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tima M. McGuthry-Banks whose telephone number is (703) 308-1917. The examiner can normally be reached Monday to Friday from 7:30 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Prince Willis, Jr., can be reached on (703) 308-3050.

The facsimile phone numbers for "Official Papers" are (703) 305-3599, (703) 305-7718 or (703) 305-5408 and the facsimile phone number for "Unofficial Papers" is (703) 305-7719. When filing a FAX in Technology Center 1700, please indicate in the header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0651.

Melvyn Andrews
MELVYN ANDREWS
PRIMARY EXAMINER
GROUP 1300

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August 27, 1999